

2.3 Construction management personnel shall demonstrate a familiarity level knowledge of the following laws and Department of Energy Order related to environmental protection, safety and health:

- Comprehensive Environmental Response, Compensation, and Liability Act Requirements (CERCLA)
- Resource Conservation and Recovery Act (RCRA)
- National Environmental Policy Act (NEPA)
- Clean Water Act (CWA)
- Clean Air Act (CAA)
- Toxic Substance Control Act (TSCA)
- DOE Order 5480.4, Environmental Protection, Safety, and Health Protection Standards

Supporting Knowledge and/or Skills

a. Discuss the purpose, scope, and application of the listed Act and DOE Order. Include in this discussion key terms, essential elements, and personnel responsibilities and authorities.

- **Comprehensive Environmental Response, Compensation, and Liability Act Superfund Act (CERCLA)** In 1980, Congress enacted the Comprehensive Environmental Response, Compensation, and Liability Act, usually referred to as “CERCLA” or “Superfund” CERCLA’s most basic purposes are to provide funding and enforcement authority for cleaning up the thousands of hazardous “waste sites” created in the U.S. in the past which are now abandoned and inactive and to respond to hazardous substance spills.

The following is a listing of some of the key terms and essential elements of CERCLA:

Hazardous Substance is defined as those substances that are listed or designated under other environmental statutes including hazardous and characteristic wastes under RCRA, hazardous substances defined in the Clean Water Act (CWA), hazardous air pollutants listed under the Clean Air Act (CAA), and hazardous chemical substances or mixtures listed under Toxic Substances Control Act (TSCA).

Release or threat of release is the discharge of a certain quantity of a hazardous substance into the environment. Release of any quantity is adequate to trigger CERCLA response action.

Environment is defined broadly to include any surface water, groundwater, drinking water supply, land surface, subsurface strata, and ambient air.

National Priorities List (NPL) is the national ranking of inactive hazardous waste sites across the country that the Environmental Protection Agency (EPA) has determined to be in need of some type of response action.

National Contingency Plan (NCP) is the primary guidance document for the implementation of CERCLA response actions. The actions include response to oil spills and other hazardous substances.

Removal actions are performed to deal with environmental emergencies. CERCLA loosely defines a removal to include providing an alternate drinking water supply or the erection of a fence around a hazardous waste site. In short, just about any action that diminishes the threat to human health or the environment from a hazardous waste site and that can be done quickly qualifies as a removal.

Remedial Investigation/Feasibility Study (RI/FS) is the field assessment of site conditions and the evaluation of alternatives to the extent necessary to select a remedy. The RI/FS can be expensive and time consuming at most NPL sites.

Applicable Relevant and Appropriate Requirements (ARARs) are any standard, requirement, criteria, or limitation under any Federal environmental law, and any promulgated standard, requirement, criteria, or limitation under a state environmental or facility siting law that is more stringent than any Federal standard.

Record of Decision (ROD) documents all facts, analyses, and site-specific determinations in sufficient detail to explain how the remedy is protective of human health and the environment, meets ARARs, and how they will attain permanent solutions to the maximum extent possible.

Joint and several liability is the legal instrument within CERCLA that gives EPA the ability to sue a few Potentially Responsible Parties (PRPs) at major Superfund sites and obtain judicial decision that each is individually responsible for all cleanup costs at the site.

- **Resource Conservation and Recovery Act (RCRA)** RCRA is a regulatory statute designed to provide “cradle to grave” control of hazardous waste by imposing management requirements on generators and transporters of hazardous waste and upon owners and operators of treatment, storage and disposal (TSD) facilities. RCRA applies mainly to active facilities, and does not address the serious problem of abandoned and inactive sites. RCRA amended the Solid Waste Disposal Act (SWDA), therefore, the two terms are sometimes used synonymously.

Subtitle A of RCRA declares that, as a matter of national policy, the generation of hazardous waste is to be reduced or eliminated as expeditiously as possible, and land disposal should be the least favored method for managing hazardous wastes. In

addition, all waste that is generated must be handled so as to minimize the present and future threat to human health and the environment.

The Federal Facilities Compliance Act (FFCA) amends RCRA to waive the sovereign immunity previously afforded to Federal facilities. Federal facilities are now subject to the Federal, state, interstate, and local substantive and procedural requirements of RCRA.

The following is a listing of some of the key terms and essential elements of RCRA:

A **solid waste** is any discarded material that is not excluded by Section 261.4 (a) or that is not excluded by variance granted under Sections 260.30 and 260.31 (RCRA 261.2). A discarded material is any material which is abandoned, recycled, or considered inherently waste-like. Abandoned materials are materials that are disposed of, burned or incinerated, or accumulated, stored, or treated (but not recycled) before or in lieu of being abandoned by being disposed of, burned, or incinerated. Recycled materials are materials that are recycled, or accumulated, stored, or treated before recycling. Recycled materials include materials that are burned to recover energy or used to produce fuels, reclaimed materials, and materials that are accumulated speculatively such as scrap metal.

Section 261.4 (a) exclusions are domestic sewage, industrial wastewater discharges, irrigation return flows, nuclear source or by-products, materials subjected to ~~in~~itu mining, pulping liquors, spent sulfuric acid used to produce virgin sulfuric acid, secondary materials that are reclaimed and returned to the original process, spent wood preserving solutions, certain EPA hazardous wastes, and certain non-wastewater splash condenser dross residues from high temperature metals recovery units.

A **generator** is any person, by site, whose act or process produces hazardous waste identified or listed in Part 261 of RCRA or whose act first causes a hazardous waste to become subject to regulation.

Cradle to Grave is the basic structure for the RCRA Subtitle C that follows a substance from identification through disposal.

A solid waste is a **hazardous waste** if it is not excluded by 261.4(b) (see solid waste definition for these exclusions) and it meets the following exclusions: (1) it meets any of the characteristics of hazardous wastes identified in subpart C; (2) it is listed in subpart D; (3) it is a mixture of a solid waste and a hazardous waste; and, (4) it is used oil that contains more than 100 (parts per million ppm) total halogens.

A **facility** is all contiguous land, structures, other appurtenances, and improvements on the land, used for treating, storing, or disposing of hazardous waste. A facility may consist of several treatment, storage, or disposal operational units.

Disposal is the means of discharge, deposit, injection, dumping, spilling, leaking, or placing of any solid waste or hazardous waste into or on any land or water so that such solid waste or hazardous waste or any constituent thereof may enter the environment or be emitted into the air or discharged into any waters, including groundwaters.

Listed waste meets the criteria set forth in 261.3(a) (2) and in 261 Subpart D.

Operator is any person responsible for the overall operation of a facility.

Transporter is defined as a person engaged in the offsite transportation of hazardous waste by air, rail, highway, or water.

Storage is defined as the holding of hazardous waste for a temporary period, at the end of which the hazardous waste is treated, disposed of, or stored elsewhere.

- **National Environmental Policy Act (NEPA)** The Act establishes national environmental policy and goals for the protection, maintenance, and enhancement of the environment and provides a process for implementing these goals within Federal agencies. Section 102 requires Federal agencies to incorporate environmental considerations in their planning and decision-making through a systematic interdisciplinary approach. Specifically, all Federal agencies are to prepare detailed statements assessing the environmental impact of and alternatives to major Federal actions significantly affecting the environment. These statements are commonly referred to as environmental impact statements (EISs).

The following is a listing of some of the key terms and essential elements of NEPA:

Major Federal Actions are defined in 10 CFR 1508.18. They include actions with effects that may be major and which are potentially subject to Federal control and responsibility. “Major” reinforces but does not have a meaning independent of “significantly” (10 CFR 1508.27).

Significantly is defined in 10 CFR 1508.27. As used in NEPA, “significantly” requires consideration of both context and intensity. Context means that the significance of an action must be analyzed in several contexts such as society as a whole, the affected region, the affected interests, and the locality. Intensity means the severity of impact.

Categorical exclusion (CX) is the method by which an agency identifies a category of actions which do not individually or cumulatively have a significant effect on the human environment and which have been found to have had no such effect in past instances.

Types of actions that can receive a Categorical Exclusion are listed in 10 CFR 1021, Subpart D, Appendices A & B. DOE has determined that these classes of actions do not individually or cumulatively have a significant effect on the human environment.

Environmental assessment (EA) is a screening process document used to determine whether an agency must prepare an EIS or make a finding of no significant impact (FONSI). CEQ regulations describe an EA as a concise public document that also serves to aid an agency's compliance with NEPA when no EIS is necessary and to facilitate preparation of an EIS when one is necessary. An EA should include a brief discussion of the need for the proposal, alternative, the environmental impacts of the proposed action and alternatives, and a listing of agencies and persons consulted.

Environmental impact statement (EIS) describes the environmental impacts of the proposed action, any adverse environmental impacts which cannot be avoided, the reasonable alternative to the proposed action, the relationship between local short term uses of man's environment and the maintenance and enhancement of long term productivity, and any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented. It is prepared when it is determined that a proposed Federal action does not fall within a designated categorical exclusion or does not qualify for a FONSI.

Mitigation measures are used to reduce adverse impacts, and must be included in the EIS. These measures must be implemented by the lead agency once a decision is made. Council on Environmental Quality (CEQ) lists 5 generic mitigation measures in CFR 1508.20

Finding of No Significant Impact is a FONSI It is one of 2 alternative results of an EA, the other being that an agency must prepare an EIS.

- **Clean Water Act (CWA)** The CWA was enacted to improve the quality of surface water. The CWA is comprised of the following five elements: (1) a system of minimum national effluent standards for each industry; (2) water quality standards; (3) a discharge permit program where these standards are translated into enforceable limitations (i.e., the NPDES program); (4) provisions for special problems such as toxic chemicals and oils spills; and, (5) a revolving construction loan program for publicly-owned treatment works.

The following is a listing of some of the key terms and essential elements of CWA:

Discharge as defined in section 311(a)(2) of the CWA includes but is not limited to, any leaking, pumping, pouring, emitting, emptying, or dumping of oil, but excludes discharges in compliance with a permit under section 402 of the CWA, discharges resulting from circumstances identified, reviewed, and made a part of the public record with respect to a permit issued or modified under section 402 of the CWA, and, subject to condition in such permit, or continuous or anticipated intermittent

discharges from a point source, identified in a permit or permit application under section 402 of the CWA, that are caused by events occurring within the scope of relevant operating or treatment systems.

Pollutant as defined in section 502(6) of the CWA includes only the materials specifically listed in that section. The definition is nevertheless quite broad and has been broadly interpreted to include virtually all waste material, whether or not that material has value at the time it is discharged.

Point source includes any discernible, confined and discrete conveyance from which pollutants are or may be discharged.

Navigable water is defined in 40 CFR 110.1 and means the water of the United States, including the territorial seas. They include: all waters that are currently used or were used in the past or may be susceptible to use in interstate or foreign commerce, including all waters that are subject to the ebb and flow of the tide; interstate waters, including interstate wetlands; all other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, and wetlands, the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce; all impoundments of waters otherwise defined as navigable water under this section; tributaries of water identified in this definition, including adjacent wetlands; and wetlands adjacent to water identified in this definition.

National Pollutant Discharge Elimination System (NPDES) a system of requirements to obtain permits for the commencement or continuation of any discharge of pollutants to surface waters. It defines for each individual discharger his permissible level of release into water of the United States.

Effluent limits are included in the discharge permit. They are either based on published limits for a specific pollutant or on professional judgment for those pollutants without a published limit.

Publicly Owned Treatment Works (POTW) is typically a municipal water treatment facility that treats and disposes of domestic, "municipal," and commercial waste water. Industrial facilities that discharge into POTWs are regulated not by requirements governing direct discharges, but rather by comparable treatment requirements, called pretreatment standards, adopted pursuant to section 307(b) of the CWA.

Water quality standards are mechanisms provided in the CWA by which discharge limitations are tightened in order to protect or maintain adequate water quality in specific bodies of water.

Best Management Practices (BMP) is the comprehensive and detailed formal processes outlined in the Act are in many cases inapplicable to situations where discharge limits are yet to be promulgated. In such cases, the regulations authorize the permit issuer to establish discharge limits based on the exercise of professional or engineering judgment.

- **Clean Air Act (CAA)** The purposes of the CAA are: (1) to protect and enhance the quality of the nation's air resources so as to promote the public health and welfare and the productive capacity of its population; (2) to initiate and accelerate a national research and development program to achieve the prevention and control of air pollution; (3) to provide technical and financial assistance to state and local governments in connection with the development and execution of their air pollution prevention and control programs; and, (4) to encourage and assist the development and operation of regional air pollution prevention and control programs.

The following is a listing of some of the key terms and essential elements of CAA:

National Ambient Air Quality Standards (NAAQS) are the primary standards designed to protect health and secondary standards designed to protect public welfare. Standards exist for carbon monoxide, nitrogen dioxide, sulfur dioxide, particulate matter, hydrocarbons, ozone, and lead.

State Implementation Plan (SIP) is a system used by each state under sections 107 and 10 of the act to assure the air quality within its borders is maintained at a level consistent with the national ambient air quality standard program.

Attainment and nonattainment area are areas which did not meet statutory deadline in 1975 for attainment of air quality standards. As a result, the law was amended to extend deadlines for specific standards. Areas that were not in compliance with one or more air quality standards were classified by EPA as nonattainment areas.

Hazardous Air Pollutants (HAPs) are asbestos, benzene, beryllium, coke oven emissions, inorganic arsenic, mercury, radionuclides, and vinyl chloride. Other chemicals are under consideration for inclusion in this list.

Criteria pollutants are sulfur dioxide, carbon monoxide, particulate matter, nitrogen dioxide, photochemical oxidants, and lead.

New sources are those that were not existing as the act was implemented. These new sources are subject to more stringent levels of control under the act than existing sources because Congress concluded that it would be more cost effective to require high levels of technological performance at new sources than retrofitting existing sources with state of the art control technologies.

New Source Performance Standards (NSPS) EPA has identified new and modified sources that contribute significantly to air pollution. EPA has set emission standards that reflect the degree of emission reduction achievable through the technology that the agency determines has been adequately demonstrated to be the best taking into consideration several factors for these sources.

Prevention of Significant Deterioration (PSD) is a permit program that is designed to prevent significant deterioration of air quality in attainment areas.

Best Achievable Control Technology (BACT) is the maximum degree of emission reduction achievable taking into account economic, energy, and environmental factors.

Reasonably Achievable Control Technology (RACT) SIPs must provide for all reasonably available control measures for major sources as expeditiously as practicable with adoption, at a minimum, of RACT for existing sources.

Maximum Achievable Control Technology (MACT) EPA must promulgate standards requiring the installation of technology that will result in the maximum degree of reductions it determines is achievable. This requirement is referred to as the MACT standard.

- **Toxic Substance Control Act (TSCA)** The TSCA has two main regulatory features: first, acquisition of sufficient information by EPA to identify and evaluate potential hazards from chemical substances; second, regulation of the production, use, distribution, and disposal of such substances where necessary. The main provisions of the Act include: premanufacture notification (PMN), inventory list (Section 8), reporting requirements, and testing requirements. Additionally, TSCA specifically regulates polychlorinated biphenyl (PCB), chlorofluorocarbons (CFC), and asbestos.

The following is a listing of some of the key terms and essential elements of TSCA:

Manufacture is defined by TSCA to include not only the traditional notions of manufacture and production, but also the importation of TSCA-regulated chemical substances or mixtures.

Premanufacture notice (PMN) is a notice that a manufacturer is required to submit regarding its intention to manufacture a chemical substance not on the TSCA Inventory or before manufacturing a chemical for a significant new use.

PCB is polychlorinated biphenyl.

Process means the preparation of a chemical substance or mixture, after its manufacture, for distribution in commerce in the same form or physical state as, or in

a different form or physical state from, that in which it was received by the persons so preparing such a substance or mixture, or as part of an article containing the chemical substance or mixture.

A **processor** is any person who processes a chemical substance or mixture.

Chemical substance includes any organic or inorganic substance of a particular molecular identity, including (1) any combination of such substances occurring in whole or in part as a result of a chemical reaction or occurring in nature and (2) any element of uncombined radical. Statutory exclusions from this definition are: (1) any mixture; (2) any commercial pesticide; (3) tobacco and certain tobacco products; (4) any nuclear source material or by-product; (5) any pistol, firearm, revolver, shells, and cartridges; and, (6) any commercial food, food additive, drug, cosmetic, or device.

New chemical review Under TSCA, any person intending to manufacture or import a chemical substance first must determine whether it is listed on the TSCA inventory. If the chemical substance is not listed on the inventory, the manufacturer or importer must determine whether the chemical substance is excluded from regulation or whether it is exempt from requirements. If the chemical substance is neither excluded nor exempted, the prospective manufacturer or importer must comply with the PMN requirements before commencing those activities.

- **DOE Order 5480.4, Environmental Protection, Safety, and Health Protection Standards**- The purpose of this DOE Order is to specify and provide requirements for the application of the mandatory environmental protection, safety, and health (ES&H) standards applicable to all DOE and DOE contractor operations; to provide a listing of reference ES&H standards; and to identify the sources of the mandatory and reference ES&H standards. This Order is to be followed during facility design, construction, operation, modification, and decommissioning. The order applies to all Departmental Elements and contractors performing work for DOE.

The following is a listing of some of the key terms and essential elements of DOE Order 5480.4:

Mandatory environmental protection, safety, and health (ES&H) standards are those standards required either by Federal or state law or DOE order. The sources of these standards are listed throughout this order.

Departmental elements are the offices, sites, or other entities with DOE that are impacted by this order.

Noncompliance is a temporary or permanent release from the requirements of a statute, code, directive, regulation, order, or manual. Depending of the origin of the

ES&H standards, noncompliance with a requirement of these standards is referred to as an exemption, variance, exception, interim order, waiver, or deviation.

b. Discuss the contractor's responsibilities for environmental safety and health protection, as stated in the above documents.

- **CERCLA** - under section 9604 (f) the act requires compliance with Federal health and safety standards by contractors and subcontractors as a condition of contracts awarded by the President. Additionally, the National Contingency Plan (NCP) provides for the protection of the health and safety of employees in response actions. Section 300.150 of the NCP requires that response actions will comply with the provisions for response action worker safety and health in 29 CFR 1910.120. The contractor on a response action must assure that an occupational safety and health program is made available for the protection of workers at the response site. In addition, contractors must comply with any applicable provisions of Occupational Health and Safety Act (OHSA, 29 USC 651 et seq.) and state health and safety laws. Federal OSHA requirements include such items as Construction Standards (29 CFR part 1926), General Industry Standards (29 CFR part 1910), and the general duty requirement of section 5(a)(1). Finally, the NCP states that all governmental agencies and private employers are directly responsible for the health and safety of their own employees.
- **RCRA** - employee protection, or occupational safety and health, is covered under section 6971 (f) of Subchapter VII--Miscellaneous Provisions which states a contractor must meet OSHA (29 U.S.C. sections 651 et seq.) requirements. As part of meeting OSHA requirements, a contractor must also identify any hazardous waste generation, treatment, storage, disposal facility or site where cleanup is planned or underway; provide information identifying the hazards to which persons working at a hazardous waste generation, treatment, storage, disposal facility or site or otherwise handling hazardous waste may be exposed, the nature and extent of the exposure, and methods to protect workers from such hazards; and provide information about incidents or worker injury or harm at a hazardous waste generation, treatment, storage or disposal facility or site. The contractor is also responsible for reporting this information to the lead regulatory agency.
- **NEPA** - this Act does not specifically address health and safety issues. However, under section 4331 (c), Subchapter I--Policies and Goals, NEPA broadly states that each person should enjoy a healthful environment and that each person has a responsibility to contribute to the preservation and enhancement of the environment. Usually, any work related to NEPA is covered by the provisions set forth in CERCLA, RCRA, and/or OSHA for health and safety concerns.
- **CWA** - this Act does not specifically address health and safety issues. Under section 1251 (a) and (b), Subchapter I--Research and Related Programs, Congress states that its policy is to prevent, reduce, and eliminate pollution being discharged to the

Nation's waters. Work related to the CWA is covered by the provisions set forth in CERCLA, RCRA, and/or OSHA for health and safety concerns.

- **CAA** - as relating to the environment and health and safety, the intent of Congress in writing the CAA was to protect and enhance the quality of the Nation's air resources so as to promote the public health and welfare and the productive capacity of the populace. Regarding health and safety, the CAA mandates the specification of air quality standards for certain Hazardous Air Pollutants (HAPs). Any project defined as a source of air emissions must meet the applicable permitting standards for the location of the project. Such permit standards are site and contaminant specific.
- **TSCA** - regarding health and safety issues, TSCA is slightly different in that it clearly states that the EPA Administrator is not deemed to be exercising statutory authority to prescribe or enforce standards or regulations affecting occupational safety and health as specified under OSHA (29 U.S.C. Section 653 (b)(1)). Work related to the CWA is covered by the provisions set forth in CERCLA, RCRA, and/or OSHA for health and safety concerns.
- **DOE Order 5480.4, Environmental Protection, Safety, and Health Protection Standards**- this Order is applicable in all situations where, under the contractual arrangements for the work to be performed, DOE has authority to establish and enforce environmental protection, safety, and health protection program requirements. The Order applies to all DOE contractor operations and must meet all regulatory health and safety requirements (i.e., OSHA, RCRA, CERCLA, state laws, etc.) unless specifically exempted by a legally binding contract.

- c. *Given the results from an analysis of contractors noncompliance with the environmental safety and health protection requirements of the listed documents, determine the potential implications and describe the procedure for communicating the results to the contractor and to Department management.*

The potential implications to the contractor could include, but not be limited to, any one or combination of the following:

- Civil and criminal litigation from DOE, the community, or interested public interest groups;
- Civil and criminal litigation from an injured individual;
- Cancellation of contractor's contract for all or any portion of the contractual scope of work; and,
- Fines and penalties levied against the contractor from enforcing regulatory agencies.

The procedure of communicating a noncompliance finding to the contractor will be specified by the contract. Usually, notification is done in writing and submitted by the DOE element through the DOE Contracting Officer Technical Representative (COTR) handling the contract. A full account of the violation should be clearly stated. To notify the DOE

management of a noncompliance issue, the violation should also be submitted in writing to the supervisor of the group handling health and safety violations. Some DOE organizations will require that a proper form be filled out and submitted, documenting the occurrence fully.

- d. Discuss the application of the listed environmental protection Acts to a construction project during the conceptual, execution, acceptance, and close-out phases of the project.***

Sections 2.3 (a)-(c) above, provide the information necessary to discuss the application of the listed Acts and how they apply to the various phases of a project.

As an example, construction of a remedial action project will be briefly reviewed from the perspective of the environmental protection acts. During conceptual planning for a construction project, all of the listed environmental protection acts must be evaluated for their applicability to the proposed project. If the remedial action project is performed under CERCLA, then all the other environmental laws must be reviewed to determine whether they are applicable or relevant and appropriate requirements (ARARs). If wastes are generated, they must be evaluated to assess whether they are hazardous wastes and thus must be treated, stored or disposed of according to RCRA. For water or wastes treated on-site, all air emissions and effluent discharges must meet the requirements of the CAA and CWA. A NEPA environmental assessment or environmental impact statement will be required for any remediation project on federal land. As part of project execution, mitigation measures may have to be designed and implemented to protect critical habitat, and emissions and effluents will have to be monitored to ensure regulatory compliance. Prior to project acceptance and close-out, project completion reports that include chemical-specific data on emissions and effluents will have to be provided to the regulatory agencies to document that the project was executed and completed in accordance with the applicable environmental acts.